

(ii) an external port controller connected to an electricity supply grid, wherein such port controller controls the flow of electricity through the external port;

(b) an internal port mounted on a hydrogen fuel cell powered device for receiving electricity and water to be utilized by an onboard fuel plant of the device to produce hydrogen fuel;

(c) an internal controller carried on the device for controlling aspects of the supply of electricity and water to the device; and

(d) a connector for coupling the external port of the station to the internal port of the device for the supply of electricity and water therebetween under the control of the external port controller and/or the internal controller.

--59. (New) A method for distributing energy to a fuel cell powered device coupled to a port, the port being coupleable to at least one energy supply source and capable of communicating with the device, the method comprising:
communicating an energy transfer request from one of the device to the port or the port to the device; and
transferring energy to the device in response to the request.

60. (New) The method of claim 59, wherein transferring energy to the device further comprises delivering the energy according to one or more of a predetermined price, delivery time and generation source.

61. (New) The method of claim 59, wherein transferring energy to the device further comprises notifying the port that the device is ready to receive the energy transfer.

62. (New) The method of claim 59, wherein transferring energy to the device further comprises transferring water or constituents of water to the device.

63. (New) The method of claim 59, wherein transferring energy to the device further comprises measuring the amount of energy transferred to the device from the port.

64. (New) The method of claim 63, wherein measuring the amount of energy transferred to the device further comprises interrupting the energy transfer when a predetermined amount of energy has been transferred.

65. (New) The method of claim 59, wherein the port is further capable of communicating data associated with a first energy service provider having the device as a customer, and communicating data associated with a second energy service provider having the port as a customer, and further wherein communicating an energy transfer request from the device to the port comprises:

establishing a first logical communications link for data exchange pertaining to the first energy service provider;

communicating the energy transfer request to the first energy service provider over the first logical communications link; and

processing the energy transfer request to create an energy purchase request according to energy transfer preferences associated with the device.

ad cont 66. (New) The method of claim 65, wherein processing the energy transfer request further comprises:

specifying a preferred energy supply source to provide energy to the port;

identifying one or both of a preferred time and availability to begin transferring energy from the port to the device; and

stating a preferred price for the energy to be transferred.

67. (New) The method of claim 65, further comprising:

establishing a second logical communications link for data pertaining to the second energy service provider;

communicating the energy purchase request from the first energy service provider to the second energy service provider over the first and second logical communications links;

processing the energy purchase request according to energy transfer criteria associated with one or both of the port or device to obtain a energy purchase reply;

communicating the energy purchase reply to the first energy service provider over the first and second logical communications links;
receiving a response from the first energy service provider over the first and second logical communications links indicating acceptance of the purchase reply; and
transferring an energy purchase order from the first energy service provider to the second energy service provider over the first and second logical communications links in response to the accepted reply.

68. (New) The method of claim 67, wherein processing the energy purchase request further comprises:

comparing the energy purchase request with the energy transfer criteria; and
calculating a purchase price based upon the energy transfer criteria.

69. (New) The method of claim 67, further comprising negotiating the energy purchase request.

70. (New) The method of claim 69, wherein negotiating the energy purchase request further comprises:

modifying one or more of a purchase price, a time for delivery of the energy, and the amount of energy to be delivered in response to the reply;
compiling a modified energy purchase request; and
sending the modified request to the second energy service provider.

71. (New) The method of claim 67, further comprising:
informing the port through the second logical communications link of the amount of energy to be transferred and the time of the energy transfer.

72. (New) The method of claim 67, further comprising:
compiling an invoice for the energy transfer; and
submitting the invoice to an account associated with one or both of the device and port.

73. (New) A method for distributing energy from a fuel cell powered device coupled to a port, the port being coupled to an energy consumer and capable of communicating with the device, the method comprising:

communicating a generation request from one of the port to the device or device to the port;
generating energy within the device in response to the generation request; and
supplying the generated energy through the port to the energy consumer.

74. (New) The method of claim 73, wherein supplying the generated energy further comprises supplying the energy to an electrical distribution system.

75. (New) The method of claim 73, wherein supplying the generated energy further comprises supplying the energy to a local electrical distribution system.

76. (New) The method of claim 73, wherein the generation request further comprises generating the energy according to a predetermined price and delivery time.

77. (New) The method of claim 73, wherein supplying the generated energy further comprises notifying the port that the device is ready to begin supplying energy.

78. (New) The method of claim 73, wherein supplying the generated energy further comprises measuring the amount of energy transferred from the device.

79. (New) The method of claim 78, wherein measuring the amount of energy transferred from the device further comprises interrupting the energy transfer when a predetermined amount of energy has been transferred.

80. (New) The method of claim 78, further comprising:
determining a maximum energy generation threshold value for the device; and

interrupting a transfer of the generated energy to the consumer when the energy supplied reaches the threshold value.

81. (New) The method of claim 73, wherein the port is further capable of communicating data pertaining to a first energy service provider having the device as a customer, and communicating data pertaining to a second energy service provider having the port as a customer, and further wherein generating energy within the device comprises:

estimating the total amount of energy stored by the device;
establishing a first logical communications link for data pertaining to the first energy service provider;
communicating the amount over the first logical communications link; and
processing the energy amount to create an energy sales offer according to sales preferences associated with the device.

82. (New) The method of claim 81, wherein processing the energy amount further comprises stating a preferred price for the estimated amount of energy.

83. (New) The method of claim 81, further comprising:
establishing a second logical communications link for data pertaining to the second energy service provider;
communicating the energy sales offer from the first energy service provider to the second energy service provider over the first and second logical communications links;
comparing the energy sales offer to energy purchase criteria associated with one or both of the port or device;
determining if the sales offer and the energy purchase criteria match;
compiling a purchase order that includes an energy price; and
communicating the purchase order to the first energy service provider over the first and second logical communications links.

84. (New) The method of claim 83, wherein determining if the sales offer and the energy purchase criteria match further comprises:
comparing an energy cost presented by the second energy service provider with the purchase order;
determining if the energy cost exceeds the energy price by a predetermined threshold amount;
and
accepting the purchase order if the energy cost exceeds the energy price threshold amount.
85. (New) The method of claim 81, further comprising:
compiling an invoice for the energy supplied;
communicating the invoice from the first energy service provider to the second energy service provider along the first and second logical communications links; and
submitting the invoice to an account associated with one or both of the port or device.
86. (New) A method of transferring energy to and from a port adapted to be coupled to a fuel cell powered device, comprising:
receiving an energy transfer request and transferring energy in response to the energy transfer request while operating in a first mode; and
communicating an energy generation request and transferring energy in response to the energy generation request while operating in a second mode.
87. (New) The method of claim 86, further comprising measuring the amount of energy transferred.
88. (New) The method of claim 86, wherein measuring the amount of energy transferred further comprises interrupting the transfer of energy when a predetermined amount of energy has been transferred.
89. (New) The method of claim 86, wherein transferring energy while operating in the first mode further comprises transferring water to the device.

90. (New) The method of claim 86, wherein transferring energy while operating in the first mode further comprises delivering energy according to on or more of a predetermined price, delivery time and generation source and availability.
91. (New) The method of claim 86, wherein transferring energy while operating in the second mode further comprises transferring the energy to an electrical distribution system.
92. (New) The method of claim 86, wherein transferring energy while operating in the second mode further comprises transferring the energy to a local electrical distribution system.
93. (New) A method of transferring energy to and from a fuel cell powered device adapted to be coupled to a port, comprising:
submitting an energy transfer request and receiving energy in response to the energy transfer request while operating in a first mode; and
communicating an energy generation request, generating the energy and transferring the energy in response to the energy generation request while operating in a second mode.
94. (New) The method of claim 93, further comprising measuring the amount of energy transferred.
95. (New) The method of claim 93, wherein measuring the amount of energy transferred further comprises interrupting the transfer of energy when a predetermined amount of energy has been transferred.
96. (New) The method of claim 93, wherein transferring energy while operating in the first mode further comprises transferring water to the device.

97. (New) The method of claim 93, wherein transferring energy while operating in the first mode further comprises delivering energy according to one or more of a predetermined price, delivery time, generation source and availability.
98. (New) The method of claim 93, wherein transferring energy while operating in the second mode further comprises transferring the energy to an electrical distribution system..
99. (New) The method of claim 93, wherein transferring energy while operating in the second mode further comprises transferring the energy to a local electrical distribution system.
100. (New) A system for distributing energy comprising:
- (a) a station including:
 - (i) a first port for coupling to a supply of water or fluid constituents of water;
 - (ii) a first port controller coupled to the first port for connecting to an energy supply source for controlling the flow of energy through the first port;
 - (b) a hydrogen fuel cell device including:
 - (i) a second port for coupling the first port to the device;
 - (ii) an on-board fuel plant capable of selectively coupling to the second port for storing and/or producing hydrogen fuel using electricity and water supplied thereto;
 - (iii) a second controller coupled to the on-board fuel plant; and
- one of the first port controller and the second controller for controlling an aspect of the exchange of one of electricity, water and fluid constituents of water with device.
101. (New) A system as claimed in claim 100 wherein the one of the first port controller and second controller includes a data port for coupling to a data network.

Ad Cont.

102. (New) A system as claimed in claim 101 wherein the one of the first port controller or second controller includes a first power switch for one of directing electricity to the first port and routing electricity from the first port.
103. (New) A system as claimed in claim 102 wherein the one of the first port controller and second controller includes a first module for operating the first switch responsive to data received via the data network.
104. (New) A system as claimed in claim 103 wherein the data network includes at least one network controller for exchanging data with the one of the first port controller and second controller.
105. (New) A system as claimed in claim 100 wherein the one of the first port controller and second controller includes a data port for coupling to a data network.
106. (New) A system as claimed in claim 105 wherein the data received relates to at least one energy service provider.
107. (New) A system as claimed in claim 106 wherein the data includes data concerning electricity price.
108. (New) A system as claimed in claim 107 wherein the electricity price relates price to time-of-day.
109. (New) A system as claimed in claim 108 wherein the data network includes at least one network controller for exchanging data with the one of the first port controller and second controller.

*Ad
cont.*

110. (New) A system as claimed in claim 100 wherein the one of the first port controller and second controller includes a data port for coupling to a data network
111. (New) A system as claimed in claim 110 wherein the one of the first port controller and the second controller includes a second module for controlling hydrogen production in dependence upon a first electricity price point.
112. (New) A system as claimed in claim 111 wherein the second module is also for controlling electricity production by the fuel cell device in dependence upon a second electricity price point.
113. (New) A system as claimed in claim 112 wherein the first electricity price point is lower than the second electricity price point.
114. (New) A system as claimed in claim 113 wherein the data network includes at least one network controller for exchanging data with the one of the first port controller and second controller.
115. (New) A system as claimed in claim 100 wherein the one of the first port controller and second controller includes a data port for coupling to a data network
116. (New) A system as claimed in claim 115 wherein the one of the first port controller and second controller includes a third module for monitoring status of hydrogen storage.
117. (New) A system as claimed in claim 116 wherein the data network includes at least one network controller for exchanging data with the one of the first port controller and second controller.

118. (New) A system as claimed in claim 117 wherein the third module includes a communications module for transferring hydrogen storage status data to the network controller.
119. (New) A system as claimed in claim 100 further comprising a data link between the first and second controllers.
120. (New) A system as claimed in claim 119 wherein the one of the first port controller and second controller includes a data port for coupling to a data network.
121. (New) A system as claimed in claim 120 wherein the data network includes at least one network controller for exchanging data with the one of the first port.
122. (New) A system for distribution of energy comprising:
a station including a first port for coupling to a supply of water or fluid constituents of water; and
a first port controller coupled to the first port for connecting to an energy supply source for controlling the flow of energy through the first port;
the first port for coupling to a hydrogen fuel cell device including a second port for coupling the first port to the device, an on-board fuel plant capable of selectively coupling to the second port for storing and/or producing hydrogen fuel using electricity and water supplied thereto, and a second controller coupled to the on-board fuel plant;
one of the first port controller and the second controller for controlling an aspect of the exchange of one of electricity, water and fluid constituents of water with device.
123. (New) A system for distribution of energy comprising:
a station including a first port for coupling to a supply of water or fluid constituents of water, a first port controller coupled to the first port and for coupling to an energy supply source for controlling the flow of energy through the first port; and

a connector coupled the first port and for coupling to a hydrogen fuel cell device including a second port for coupling the first connector to the device, an on-board fuel plant capable of selectively coupling to the second port for storing and/or producing hydrogen fuel using electricity and water supplied thereto and a second controller coupled to the on-board fuel plant;

one of the first port controller and the second controller for controlling an aspect of the exchange of one of electricity, water and fluid constituents of water with device.

124. (New) A system for distribution of energy comprising:

a hydrogen fuel cell device including an internal port, an on-board fuel plant capable of selectively coupling to the internal port for storing and/or producing hydrogen fuel using electricity and water supplied thereto, the internal port for coupling the hydrogen fuel cell device to a station including an external port for coupling to a supply of water or fluid constituents of water, an external port controller coupled to the external port for connecting to an energy supply source for controlling the flow of energy through the external port;

the external port for coupling to the internal port and one of the internal and external controller for controlling an aspect of the exchange of electricity, water and/or fluid constituent of water with the device.

125. (New) A system for distributing energy comprising:

a hydrogen fuel cell device including an internal port, an on-board fuel plant capable of selectively coupling to the internal port for storing and/or producing hydrogen fuel using electricity and water supplied thereto, the internal port for coupling the hydrogen fuel cell device to a station including an external port for coupling to a supply of water or fluid constituents of water, an external port controller coupled to the external port for connecting to an energy supply source for controlling the flow of energy through the external port; and

a connector connected to the internal port coupling and for coupling the internal port to the external port;

one of the internal and external controller for controlling an aspect of the exchange of electricity, water and/or fluid constituent of water with the device.--